

PhD in Bacterial Cell Biology / Microbiology

Research Project

The Laloux lab is a young research group in de Duve Institute (UCL, Brussels). (<http://www.lalouxlab.weebly.com>). Our goal is to uncover how bacterial cells organize their molecular content in space and time to fulfill their fascinating lifecycles. In particular, we focus on the model predatory bacterium *Bdellovibrio bacteriovorus*, which feeds upon other Gram-negative bacteria. During its original cell cycle, this bacterium enters inside the envelope of its prey (e.g. *E. coli* or other species), digests the cellular content of the prey, and grows as a filament which eventually septates in a variable number of daughter cells by a process of non-binary division. This remarkable bacterium is now attracting a lot of attention because of its promising “living antibiotic” potential, as it is harmless for eukaryotic cells but efficiently kills antibiotic-resistant and biofilm-forming bacteria. However, the molecular factors that govern the non-canonical biology of *B. bacteriovorus*, which stands in sharp contrast with the textbook knowledge, are still largely unknown. In our lab, we use bacterial genetics, molecular biology and live quantitative microscopy at high resolution, to unravel the novel mechanisms that control key processes of the outstanding cell cycle of this small predator.

We are looking for a highly-motivated candidate to pursue an exciting thesis project in our lab, aiming at understanding how the predatory bacterium *B. bacteriovorus* thrives inside its prey (specific details of the possible research proposals will be provided to applicants upon request).

Techniques include: routine microbiology techniques, genetic engineering of bacteria, live fluorescence microscopy, quantitative analysis of microscopy images, molecular cloning, biochemistry and proteomic analyses, measurements of prey-predator interactions.

Required Skills/Qualifications

- Master degree in Biological Sciences, Molecular/Cellular Biology, Biochemistry, Biomedical Sciences, Microbiology or equivalent (completed in 2018 or before).
- A good command of English (spoken and written), good communication skills, and ability to work in a team are necessary.
- A microbiology/bacteriology background is a plus, but not a requirement.
- The candidate is highly motivated, quality-oriented, has a strong interest for the bacterial world, biology and fundamental research, is ready to commit for a 4-years thesis project and to apply for external fellowships if needed (see below).
- The candidate is expected to attend national and international scientific meetings and to present her/his work in the form of posters or oral communications when appropriate. The candidate will also write scientific papers for the publication of her/his work in peer-reviewed journals.

Funding

A research proposal and CV of the selected candidate will be submitted to apply for PhD fellowships (to cover the student’s full-time salary) in January 2018: **(1)** FSR, followed by a FRIA application in the Fall 2018, and/or **(2)** “Aspirant” fellowship of the F.R.S.-FNRS (depending on the candidate’s academic records). If funded, the thesis is expected to start in October 2018 (4-years).

Contact & Details

Applicants are welcome to request more information and/or send

- their CV (including the name and contact details of 2 referees)
- the full transcripts of classes and marks obtained during the Bachelor and Master studies
- a short motivation letter (max. ½ page)

to **Prof. Géraldine Laloux** (BCHM unit, ICP 75+5) by email at geraldine.laloux@uclouvain.be.

Deadline: December 22nd, 2017. The full job offer is available on the **EURAXESS** website (#256616).